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ANALYZING THE IMPACT OF ACTIVE AND PASSIVE TOBACCO SMOKING ON RESPIRATORY HEALTH OF RURAL WOMEN RESIDING IN THE KANPUR REGION

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ABSTRACT

Inhaling the tobacco smoke is known health hazard that may cause many serious respiratory disorders such as COPD, asthma, lung cancer, bronchitis, etc., especially among rural women of low and middle-income countries. Continuous exposure of passive tobacco smoke may also adversely affect the respiratory health. In this study, total 145 rural women of 20-60 years age group, those involved in tobacco smoking, were selected from the Kanpur region. A high prevalence (N=121, 83.4%) of passive smoking was found among total tobacco smoking rural women. The highest percentage (54%) of active smokers was found between 50 to 60 years age group. Agricultural women showed the highest involvement in active tobacco smoking (42%) while the passive tobacco exposure was found highest among factory workers (28%). Bidi was found most popular tobacco smoking pattern among rural women (66%). Clinical manifestations such as coughing, sputum formation, difficulty in breathing, weakness, sore throat, headache, were found significantly higher among active smokers. The study concludes that the rate of passive smoking is very high among tobacco smoking rural women. Active smoking is most common among agricultural women while least common among students. Clinical manifestations were found significantly higher among active smokers than passive smokers.

KEYWORDS: Tobacco Smoking, Respiratory Health, Rural Women & Tobacco Patterns

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Original Article

INTRODUCTION

Tobacco smoke is one of the most hazardous air pollutants that causes multiple health disorders and associated with large numbers of deaths worldwide (Rebace *et al.,* 1980, Nazaroff *et al.,* 2004) Approximately 80 % deaths associated with tobacco consumption occur in developing countries (Kulkarni *et al.,* 2017). In India, tobacco smoking is more common among rural women, about 0.5 % of women in urban areas and 2%, in rural areas used tobacco smoking. According to a previous study, female are comparatively more sensitive to tobacco smoke than male (Paoletti *et al.*, 1996).

Tobacco smoke contains more than 4,000 substances; some of them are cytotoxic and carcinogenic (Church *et al.*, 1985). Nicotine in tobacco smoke is highly addictive (Vijayakumar *et al*., 2014). Tobacco smoking causes many health problems, but respiratory disorders such as - COPD, asthma, lung cancer, bronchitis etc. are more common among tobacco smokers. Over 75% of chronic bronchitis and 90% of lung cancer are associated with tobacco smoking (Murray *et al.*, 1997, Schrek *et al.,* 1950). Smoking is also found associated with other respiratory illness such as pneumonia, tuberculosis and flu-like illness (Bello *et al.*, 2014, Boon *et al.*, 2005, Wong *et al.*, 2013). In India, more than 60% of respiratory diseases are associated with tobacco smoking (Vijayakumar *et al*., 2014). The effect of tobacco smoking on the respiratory health of rural women in the North Indian region is not well studied. The aim of this study is to analyze the impact of tobacco smoke on the respiratory health of rural women of Kanpur region.

MATERIALS AND METHODS

A cross-sectional study was conducted on 145 tobacco smoking rural women aged between 20-60 yrs, residing in rural areas ofthe Kanpur, Uttar Pradesh, India. The sample size determined using the formula $4pq/d^2$. Where the prevalence of tobacco smoking women in rural areas as 10%., relative error assumed to be 5%, a sample size was calculated 145. A pre-tested interview schedule was applied to collect the data. All women were asked questions from the prepared questionnaire about tobacco use, socioeconomic conditions and respiratory complications.

Inclusion Criteria

All women of 20-60 years age group with tobacco smoke exposure minimum 5 times a day continuously for the last three years.

Exclusion Criteria

Women those consumed tobacco occasionally or consumed smokeless tobacco were excluded from this study.

Clinical Manifestation

Common clinical manifestations of respiratory illness such as a cough, chest pain, shortness of breath, sputum formation, difficulty in breathing, sneezing, runny nose, weakness, headache, mild fever etc. were included in this study.

Statistical Analysis

Statistical analysis was done by using SPSS software (IBM SPSS statistics 20). The Chi-square test was performed to compare clinical manifestations of respiratory illness between active tobacco smokers and passive tobacco smokers.

RESULTS

From the study, it was found that there is a high prevalence (N=121, 83.4%) of passive smokers among a total 145 tobacco smoking rural women in Kanpur region. The highest percentage (54%) of active smokers was found between 50 to 60 years age group while the highest percentage (38%) of passive smokers belonged to 40-49 years age group (Figure 1). Agricultural women showed highest involvement in active tobacco smoking (42%) followed by factory workers (23%), housewives (19%), students showed the least involvement in active tobacco smoking while the passive tobacco exposure was found highest (28%) among factory workers (Figure 2). Inactive tobacco smoking patterns, bidi was found most popular tobacco smoking pattern among rural women (66%) followed by chilam (17%), hukka (13%) and cigarette (4%)

(Figure 3). Comparing the active smokers and passive smokers for clinical manifestations of respiratory illness such as coughing (67% *vs* 31%), sputum formation (47% *vs* 16%), difficulty in breathing (25% *vs* 9%), weakness (47% *vs* 21 %), sore throat (25% *vs* 9%), headache (29% *vs* 11%) were found significantly (p-value <0.05) higher among active smokers than passive smokers (Table 1).

Table 1: Clinical Manifestations Associated with Respiratory Illness among Tobacco Smoking Rural Women (n=145).

S.N.	Clinical Manifestations	Active Smokers (N=24)	Passive Smokers (N=121)	p Value*
1.	Coughing	16 (67.0%)	38 (31.0 %)	0.002
2.	Chest Pain	5 (21.0%)	16 (13.0 %)	0.346
3.	Difficulty in breathing	6 (25.0%)	11 (9.0 %)	0.038
4.	Shortness of breath	5 (21.0%)	9 (7.0 %)	0.057
5.	Sneezing	3 (13.0%)	10 (8.0 %)	0.452
6.	Runny nose	2 (8.0%)	7 (6.0%)	0.644
7.	Sputum formation	11 (47.0%)	19 (16.0 %)	0.001
8.	Weakness	11 (47.0%)	26 (21.0 %)	0.02
9.	Mild fever	4 (17.0%)	6 (5%)	0.061
10.	Headache	7 (29.0%)	13 (11%)	0.025
11.	Sore throat	6 (25.0%)	11 (9.0 %)	0.036

*** Chi-square test was performed to compare clinical manifestation of respiratory Illness between active tobacco smokers and passive tobacco smokers (p-value <0.05 was considered significant).**

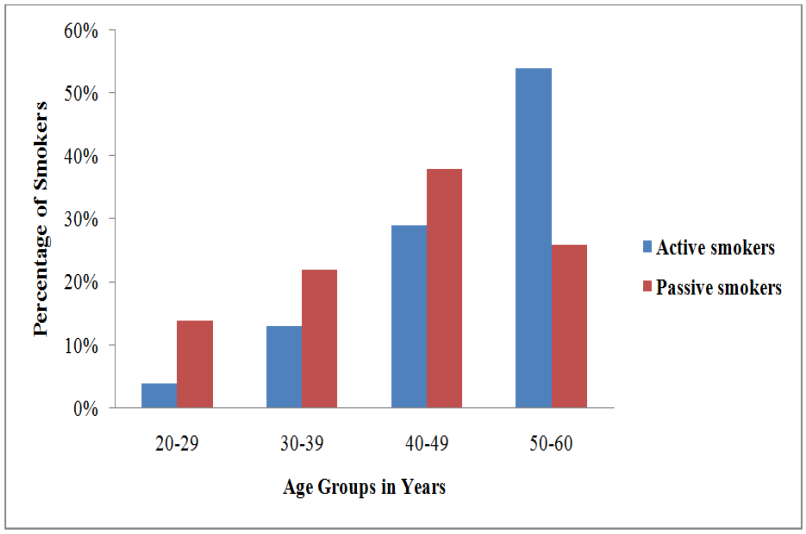

Figure 1: Age-Wise Percentage of Rural Women Involved in Active and Passive Tobacco Smoking

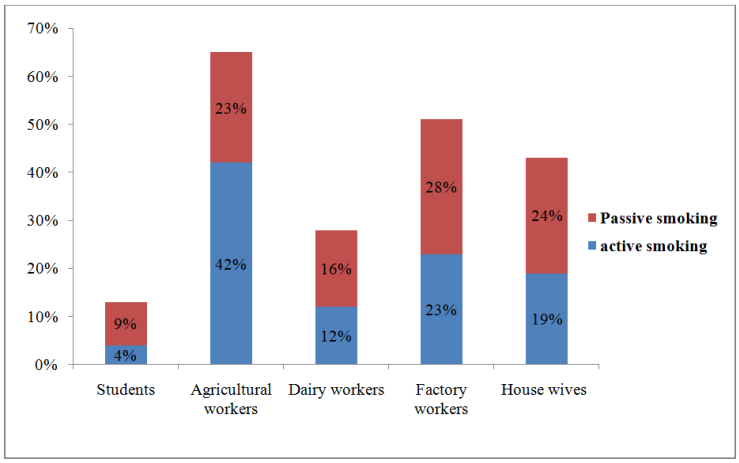

Figure 2: Effect of Education and Occupation of Rural Women on Tobacco Smoking

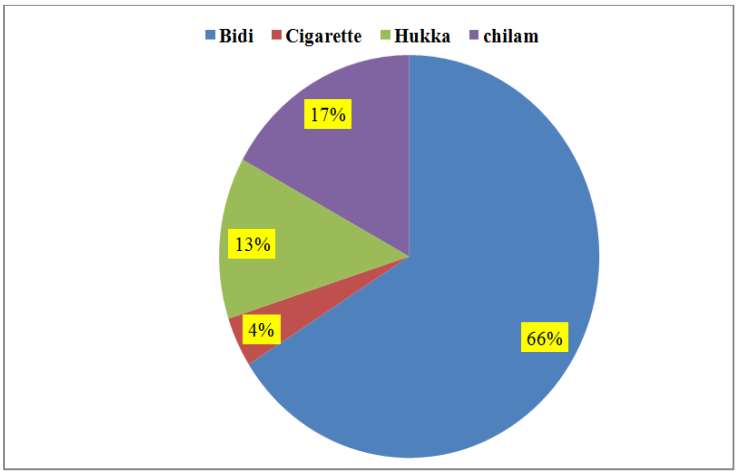

Figure 3: Percentage of Tobacco Smoking Patterns

DISCUSSIONS

The tobacco smoking by rural women has many consequences not only for their health but also for economic wellbeing, especially in low- middle-income countries. Women face various tobacco smoking associated health hazards like reproductive complications, multiple types of cancers and cardiovascular risks (Goel *et al.*, 2014). Most common adverse effect of tobacco smoking is found in the form of respiratory illness such as COPD, asthma, lung cancer, bronchitis etc. (Vijayakumar *et al*., 2014, Schrek *et al.*, 1950). An increasing prevalence of tobacco smoking among rural women is a matter of serious public health concern. Women involved in active tobacco smoking not only affect their health but also cause a threat of passive smoking to other family members. In our study, a high prevalence (N=121, 83.4%) of passive smokers was found among total tobacco smoking, women (N=145). According to a previous study in China, the prevalence of passive smoking among rural areas found 63.4% (Li *et al.* 2015) while another study stated the exposure rate of passive smoking on the women of reproductive age was 43.46% (Gong *et al.*, 2016) High involvement of women between 50 to 60 years age group was found in this study, that is supported by a previous study performed in the same region (Katiyar *et al.*, 2017). In our study students showed the least involvement in both active and passive smoking. A previous Study supported our results showing least tobacco consumption among educated women. (Kathirvel *et al.*, 2014)

Inactive tobacco smoking patterns, bidi was found most popular tobacco smoking pattern among rural women (66%). According to a study, 84.1% of rural women of Bihar used bidi for smoking. (Sinha *et al.*, 2003) Clinical manifestations such as coughing, sputum formation, difficulty in breathing, weakness, sore throat, headache, were found significantly higher among active smokers than passive smokers. Similarly, according to a previous study, the active tobacco smoke exposure was significantly more prevalent among acute respiratory distress syndrome patients compared to passive smoking, (Hasieh *et al.*, 2014) while another study suggested that both active and passive smoking can cause respiratory illness. (Lam *et al.*, 1998).

CONCLUSIONS

The rate of passive smoking is very high among tobacco smoking rural women in Kanpur region. The involvement of older rural women in tobacco smoking is higher than women of the early age group. Active smoking is most common among agricultural women while least common among students. Clinical manifestations such as coughing, sputum formation, difficulty in breathing, weakness, sore throat, headache found significantly higher among active smokers than passive smokers.

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